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PERSONALITY AND MOTIVATION IN REHABILITATION.

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THIS STUDY WAS CONCERNED WITH DISCOVERY OF SOME PSYCHOLOGICAL REFERENTS TO ESTABLISH RATINGS OF PATIENT MOTIVATION FOR RECOVERY AND RETURN TO WORK. CRITERION RATINGS OF THIS MOTIVATION, BASED UPON FOLLOWUP DATA, WERE COMPARED WITH A VARIETY OF PSYCHOLOGICAL ASSESSMENT DATA OBTAINED A YEAR BEFORE THE CRITERION DATA WERE COLLECTED. STRONG PATIENT MOTIVATION FOR RECOVERY AND RETURN TO WORK WAS ASSOCIATED WITH FAVORABLE ATTITUDES TOWARD SELF, WITH A SMALL DISCREPANCY BETWEEN RATINGS OF REAL AND IDEAL SELF, WITH INTELLIGENCE, WITH ATTITUDES OF SOCIAL RESTRAINT, AND WITH AN INTEREST IN PEOPLE AND IN GETTING ALONG WITH THEM. (AUTHOR)

Personality and motivation in rehabilitation [1]

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Introduction

Patient motivation for recovery and return to work is very important in any consideration of rehabilitation. Many authors have reported their concern about patient motivation; however, there is relatively little objective research in this area (Barry and Malinovsky, 1965).

The approach in the present study was to assess patients at that point in time when they were just beginning to recover from their illness or disorder. Assessments of personality and motivation made at this approximate time were then compared with follow-up data reflecting the degree of actual recovery. From such a comparison those assessment scores related to speed of recovery and return to work were identified. Those scores then could be said to define some of the determinants of patient motivation for rehabilitation.

In the present study, several personality assessment devices were employed. These included standardized test and interview data and ratings made therefrom. First, the relatively large number of test scores and ratings were reduced by factor analysis to more basic and more complex dimensions of personality. Then these dimensions and also the test scores representing them were correlated with criteria of motivation for recovery and return to work.

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Method

Overview of research design. Patients were administered a large number of assessment devices and were interviewed. Initial assessment ratings were made by the interviewer based upon all of the data available to him at that time, including the psychological test data. There were 33 test scores and ratings assembled at this time. Factor scores were derived after a factor analysis of these data. All of the data were then correlated with criteria of patient motivation for recovery and return to work.

Sample. The sample consisted of 110 white and 15 Negro patients at the Veterans Administration Center at Bay Pines, Florida. These patients were selected from among those available for study during the summer of 1965. Every effort was made to exclude psychotic or brain-damaged patients. Some had psychiatric disabilities, but in most instances, their physical disability was primary and the psychiatric disability, secondary. Many of the patients admitted using alcohol and the disabilities of some patients related to their excessive use of alcohol, for example, cirrhosis of the liver or gastric ulcers.

The patients ranged in age from 21 to 65. Their mean age was 45.7, and most were between the ages of 40 and 60. This is a somewhat older sample than might be drawn from the general population, but is not atypical of Veterans Administration Hospital populations. All of the subjects could read and write; those who were functionally illiterate were excluded from the study. Their mean IQ was 101 with a standard deviation of 19 IQ points. Finally, those patients were excluded from this study who were considered by the professional personnel to be the least favorable rehabilitation prospects, e. g.: long-term chronic patients. The focus in this study was upon those patients who were expected to recover.

Psychological test data. Eight psychological tests were administered individually to each subject over a two or three hour period. Usually the subjects took the tests at two sessions, on successive days. After a brief orientation interview, a trained examiner (Mr. William Boblitt) and a technician, administered the tests. While an attempt was made to administer the tests in the order in which they are described below, this was not always possible. One test, the Draw-A-Person Test, stimulated a great deal of patient resistance and many refused to do it. Thus, this test was not analyzed except clinically in rating the patients. The other seven tests yielded 33 scores or variables which are listed in Table 1.

The Thurstone Interest Test (Thurstone, 1947) was used because it is brief, easy to administer, and easy to perform. In retrospect, the forced choices include many possibilities which were outside the ken of the subjects: for example, college president versus lawyer. Few subjects in this sample had much opportunity to be either a college president or a lawyer. Thus, the test probably was not as meaningful to the subjects as some other interest tests would have been.

The Shipley-Hartford Retreat Scale (Shipley, 1940) was administered and scored in the usual manner. Only non-overlapping scores were included in the factor analysis, but all scores were used in the prediction study.

The Crowne-Marlowe Scale of Social Desirability (1960) yielded one score which is believed to reflect a person's tendency to present himself in the best possible light. This test intercorrelated very poorly with the other test scores and criteria in this study and contributed relatively little to the findings.

The Bass Orientation Inventory (Bass, 1962) yielded three ipsative scores, two of which were used in the factor analysis. The score selected for exclusion was that one which was believed to relate the least to patient motivation for rehabilitation.

The Social Vocabulary Index (McPhee, 1965) is an adaptation of the Bill Self-Concept Test (Bills, Vance, and McLean, 1951), and was developed at the Regional Rehabilitation Research Institute at the University of Utah. The language of the Social Vocabulary Index (SVI) was set by the Utah group at the sixth grade level. Thus, relatively non-verbal patients could respond meaningfully. The SVI yielded several measures of the self-concept and also will allow a comparison with a Utah sample.

The WAYS of Living Questionnaire, a modification of the WAYS of Living Scale (Morris, 1956), yielded five scores derived from a factor analysis (O'Donovan, 1966). These scale scores were believed to reflect the ideal values by which a person says he would like to live. The scales are not believed to reflect the actual values by which a person lives, except in so far as these values overlap his ideal values.

The Rotter Incomplete Sentences Test (Rotter and Rafferty, 1950) was used clinically in making ratings. Also the anxiety score, obtained from this test, was used in statistical analyses. The Draw-A-Person Test was given next but many patients refused it.

Interview and initial rating data. A standardized interview of approximately 45 minutes was conducted by Mr. Boblitt with each patient after his testing. Based upon this interview plus all of the test data including the Draw-A-Person and the Rotter Incomplete Sentences, extensive ratings were made in the following areas: work adjustment, family adjustment, self-concept, functioning potential, and personality. Five prognostic ratings plus a summary rating were made for each of these areas. In addition, an overall summary rating reflecting status and prognosis in all areas combined was made by Mr. Boblitt for each patient.

Mr. Boblitt was trained in making these ratings by the first author and by other judges who were making similar ratings on another sample of

patients in another hospital. Periodic checks on the consistency and reliability of these ratings were made.

Criteria. Approximately a year after the above assessment data were obtained, criterion ratings of motivation for recovery and return to work were made by the first author and an associate. [3] The criterion ratings were based on a follow-up questionnaire, the hospital records, and other patient data reflecting work history, disability status, etc. Where needed by the raters, follow-up information was obtained by telephone from the patients or their families. After repeated mailings, three-fourths of the sample returned questionnaires describing their present personal and vocational adjustment. All of those patients who did not respond by questionnaire, as well as some who did, were contacted by telephone. Information was obtained concerning job history since discharge from the hospital, present patient satisfaction, employer satisfaction, status of the rehabilitation, and present adjustment.

The two raters independently made three ratings: (1) M-motivation for recovery and return to work; (2) P-potential functioning efficiency--the degree to which the patient was limited in his potential functioning by his disability and by other personal and environmental factors; and (3) S-patient satisfaction with his rehabilitation and present status. Neither rater was familiar with the predictor data from the patients. The ratings were made on a detailed rating schedule consisting of several subratings under each of the three major headings. After the independent ratings, disagreements between raters were conferenced and became relatively rare as the raters gained experience. Each rater spent approximately half an hour completing the ratings on each patient.

The three ratings constituted the main criteria in the present study. A fourth criterion score consisted of the motivation rating modified by the

functioning efficiency of the potential which each patient had for achievement. The formula for this modified score was M + (10 - P), where M and P stand for the motivation and potential ratings, respectively. The notion in developing this variable was that patients with a great deal of motivation, but only limited potential should receive higher ratings than those with good motivation and good potential. In an analogous fashion, it was assumed that a patient with poor motivation but good potential should receive a higher rating than a patient with poor motivation and poor potential.

The ratings were made on a 10-point scale for 115 of the patients in this study. Sufficient follow-up information could not be obtained regarding the other ten patients, due to death, or unknown addresses.

The motivation ratings were correlated with the ratings of potential and satisfaction, .81 and .62 respectively. Ratings of potential and satisfaction were correlated .71. The modified motivation score correlated with the other three scores as follows: with motivation, .30; with potential, -.32; and with satisfaction, -.16.

Factor Analysis

For the 96 patients who had complete test data, the 33 variables were factor analyzed by the principal components method with squared multiple correlation coefficients in the principal diagonal. All factors with eigenvalues greater than 0 were retained and rotated to orthogonal simple structure by the Varimax method (Kaiser, 1958). Twenty factors with eigenvalues greater than 0 were isolated. However, after rotation, three factors appeared to be error factors and three other factors failed to have any loadings of .40 or above. Also, four additional factors failed to have two or more variables loading .40 or greater. Consequently, there were only ten rotated factors with two or more variables loading .40 or above.

Criteria were subsequently gathered for 90 of the 96 patients who had complete test data. For the 90 cases on which criterion data were available, factor scores were estimated by summing the Z-scores for those variables that had loadings of .45 or above on a particular factor. For example, the six prognostic ratings had high loadings on Factor I and its estimated factor score was simply a summation of the six Z-scores of these ratings. No variable was used to define more than one factor. Different signs for the loadings were, of course, considered in the summation.

The fourteen factor score distributions were then standardized to unit standard deviations and used to predict separately each of the three criteria through multiple regression analyses.

Results

Insert Table 1 here

The fourteen rotated factors with at least one loading of .40 or above are presented in Table 1. A description and interpretation of these fourteen factors are presented below. The percentage of common variance for which each factor accounted is enclosed in parentheses following each factor.

Factor I (19%). - This factor was defined primarily by substantial loadings by the six prognostic ratings. There was also a moderate loading by the Rotter anxiety measure. This factor appears to be a general rating factor involving the patient adjustment in a number of situations (e. g., work, family, and personality).

Factor II (14%). - Seven of the ten Thurstone Interest scales loaded heavily upon this factor. This factor is difficult to interpret because

of the high loadings by a number of apparently diverse interests (e. g., art, biological science, executive).

Factor III (8%). - This factor is defined primarily by heavy loadings of two scales of the WAYS. Both of these scales appear to reflect style of response. There was also a moderate loading by the Social Desirability scale of the Social Vocabulary Index. This factor clearly reflects response style.

Factor IV (8%). - Two of the Thurstone Interest scales load heavily on this factor. This factor represents an interest in business and computational activities.

Factor V (7%). - This factor is defined primarily by Verbal and Abstract I. Q.

Factor VI (6%). - The self-concept and self-acceptance scales of the Social Vocabulary Index are the only scales that define this factor.

Factor VII (5%). - This factor is defined by the SVI Perception of Others scale and the Rotter anxiety score. The signs of the two loadings are different and seem to reflect a mechanism whereby positive perceptions of others are associated with a lower anxiety level.

Factor VIII (5%). - The WAYS Withdrawal and Self-Sufficiency scale and the Receptivity and Sympathetic Concern scale defined Factor VIII. This factor is bipolar and seems to reflect a dimension involving self-concern versus concern for others. It could be interpreted as an introversion-extroversion dimension.

Factor IX (5%). - This factor is defined by the Physical and Biological Sciences scales of the Thurstone Interest Inventory and is interpreted as a scientific interest factor.

Factor X (4%). - This factor is a bipolar one defined by the Self and Task Orientation scales of the Bass Orientation Inventory. It is characterized by concern for completing a job in contrast to concern for ego-oriented need satisfactions.

Factors XI-XIV - Factors XI through XIV were each defined by only one variable. Factor XI (4%) was loaded heavily by the WAYS Progress and Enjoyment Through Action. The SVI Ideal Self rating projected substantially on Factor XII (3%), and the WAYS Social Restraint and Self Control scale defined Factor XIII (3%). The SVI Social Desirability scale projected relatively high on Factor XIV (3%).

Factors XV-XX - Factors XV through XVII did not have any loadings of .40 or above and consequently accounted for a negligible proportion of common variance (1 to 2%). The remaining three factors (Factors XVIII through XX) were interpreted as error factors.

Most of the factors in this analysis were defined primarily by scales from one test. The prognostic ratings had a factorial complexity of one, while most of the other multi-score tests had a factorial complexity of two or more.

Insert Table 2 here

Correlations between some of the psychological test scores and the criteria of patient motivation are presented in Table 2. Correlations between the criteria and the other test scores listed in Table 1 were not statistically significant and thus are not listed.

Motivation for recovery and return to work was associated with assessment data reflecting attitudes toward self, and particularly with the discrepancy between self-ratings of the ideal and the real self. These

relationships considered with the correlations between the Rotter anxiety score and the motivation criterion suggest that feelings of discomfort and dissatisfaction with self are an important part of what is meant by motivation for return to work.

In general, the lower the Shipley-Hartford Intelligence scores, the lower the motivation. Interest in political activities was also significantly correlated with motivation. In addition, patients who valued self control and social restraint (in contrast to a hedonistic philosophy) subsequently appeared to be better motivated. Other psychological test scores were not significantly related to the motivation criterion.

Most of these same psychological test scores were correlated with the criterion rating of functioning potential, although the relation was less strong. In particular, the Rotter anxiety score and the intelligence score, although correlating in the same direction as the above mentioned correlation between these scores and motivation, were not significantly related to potential. In addition, patients who tended to accept value statements also tended to be rated as having less functioning potential.

Ratings of the patient's satisfaction with their rehabilitation progress were correlated with a low Rotter anxiety score and a relatively small discrepancy between the self-ratings of the ideal and real self. Patients who were relatively satisfied with their rehabilitation tended to have political interests, and to describe themselves as espousing the hedonistic view of life. Contrary to expectation, ratings of patient satisfaction were not significantly associated with the Crowne-Marlowe Social Desirability scores, with the self-acceptance and other self ratings (except as indicated above) nor with the Social Desirability score of the Social Vocabulary Index. Apparently the criterion ratings of patient satisfaction were quite specific to the rehabilitation situation.

Insert Table 3 here

Next, factor scores based on the fourteen factors from Table 1 were correlated with the three criteria. Multiple regression analyses enabled the determination of the relative importance of the factors in predicting each of the three criteria. The results of these analyses are listed in Table 3.

The multiple correlation of the fourteen factor scores with the rating of motivation for recovery and return to work was .67 ($p < .001$). The standardized partial regression weights for the fourteen factors are listed in Table 3. It can be seen that the prognostic rating factor (I) has by far the largest weight. Factor V, the intelligence factor, had the next highest positive weight. A number of other factors had moderate weights. A stepwise solution indicated that Factor I alone correlated .55 with the motivation criterion and the addition of Factor V yielded a multiple correlation of .58.

For the second regression analysis, a multiple correlation of .60 ($p < .01$) was obtained between the fourteen factors and the criterion ratings of functioning potential. The standardized partial regression weights are shown in column 2 of Table 3. Again, the prognostic rating factor (I) had by far the largest weight. Factor III, the response style factor, had the second largest weight and Factor XIII defined by the WAYS Social Restraint and Self-Control Scale had the third largest weight. As in the first analysis, the prognostic rating factor alone correlated .45 with the criterion. The addition of Factors III and XIII increased the multiple correlation to .54. The remaining variables did not contribute significantly to the prediction of this criterion.

The final regression analysis with patient satisfaction ratings as a criterion resulted in a multiple correlation of .55 ($p < .05$). The regression weights are presented in column 3 of Table 3. The prognostic rating factor (I) again had the largest weight, and Factor III had the next largest weight. Factor I alone had a correlation of .40 with this criterion. The addition of Factors XIII and III raised the multiple correlation to .49.

All three sets of regression equations were quite similar in that Factor I had the highest weight and Factors III and XIII had the next highest weights in the last two equations and the third and fourth highest in the first equation. This was due to the relatively high intercorrelations among the three criteria. The first criterion, ratings of motivation for recovery and return to work, was most effectively predicted while the ratings of the patient's satisfaction with his rehabilitation efforts was the least effectively predicted.

Discussion

It is not surprising that the rating factor (I) correlated so highly with the criterion ratings (see Tables 1 and 3). Although the two sets of ratings, those making up Factor I and the criteria, were made a year apart by different people, the same sorts of data were considered and probably in the same sorts of ways. The independent clinical judgements are quite consistent.

However, it had been expected also that the other assessment data would correlate more highly with the criteria (see Table 3). That the other data did not add more to the prediction of the criteria, could be due to the skill with which the initial rater took the test variables into account in his initial rating. The present findings are not inconsistent with Sinnett, Stimpert, and Straight (1965) who found measures of personality and social behavior generally unrelated to long-term post-hospital adjustmen

Not surprisingly, motivation for recovery and return to work was predicted more adequately than patient satisfaction. This latter variable was planned as a control variable, although the correlation between it and motivation was so high that a question of rating halo might be raised. This same question of halo effects might be raised in considering the high correlation between the functioning potential criterion variable and the other two criteria.

It is difficult to interpret the finding concerning the modified motivation criterion variable (M-P). From Table 2, it appears that this modified motivation criterion was clearly different from the other two criteria, in its relationship to the predictor variables. The modified motivation criterion was correlated with favorable descriptions both of self and others on the SVI, and with a tendency to accept value statements. These are both "response-style" kinds of behavior and not easy to relate theoretically to motivation, modified or otherwise.

The findings from the factor analysis reflect the tendency for scores from a given test to load on the same factors. This test-specific outcome of factor analyses has been noted before. It was expected that the Social Desirability scores would cluster, but in fact their correlation in this study was .13. The other findings from the factor analysis have been described above.

The major purpose of this study, to discover some psychological referents for ratings of patient motivation, is best considered from the data in Tables 2 and 3. Patient motivation in this study was associated with favorable attitudes toward self, with a small discrepancy between ratings of self and ideal self, with intelligence, with attitudes of social restraint, and with an interest in people and how to get along with them (Thurstone Political Interest scale).

Abstract

This study concerned the psychological referents for patient motivation for recovery and return to work. Criterion ratings of this motivation, based upon follow-up data, were compared with a variety of psychological assessment data obtained a year before the criterion data were collected. A factor analysis of the assessment data yielded primarily test specific factors. Strong patient motivation for recovery and return to work was associated with favorable attitudes toward self, and with a small discrepancy between ratings of real and ideal self, with intelligence, with attitudes of social restraint, and with an interest in people and in getting along with them. (Author)

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Table 1

Factor loadings for the 33 assessment variables (N=96)

Variables	Factors ** I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
Thurstone Physical Science									-71					
Thurstone Biological Science		-52*							-45					
Thurstone Computational				-74										
Thurstone Business Interest				-80										
Thurstone Executive Interest		-67												
Thurstone Political Interest		-65		-48*										
Thurstone Literary Interest		-84												
Thurstone Humanitarian		-64												
Thurstone Art Interest		-65												
Thurstone Music Interest		-45												
SVI Self-concept rating						-64								
SVI Self-acceptance						-72								
SVI Ideal Self rating												66		
SVI Perception of Others							71							
SVI Social Desirability			-40*											-54
Bass Self Orientation										-64				
Bass Task Orientation										53				
Shipley Verbal IQ					-74									
Shipley Performance IQ					-62									
Crowne-Marlowe Social Desir.														
Rotter Anxiety score	41*						-52							
WAYS Social Restraint													-63	
WAYS Prog. Through Action											-76			
WAYS Withdrawal & Self Suff.								67						
WAYS Receptivity & Concern								-52						
WAYS Accept. Value Statement			-75											
WAYS Intensity of Response			-83											
Rating - Work adjustment	86													
Rating - Family adjustment	61													
Rating - Self Concept	86													
Rating - Patient limitations	71													
Rating - Personality	77													
Summary Rating	89													

* Not used to define factor
** Decimals omitted

Table 2

Correlations between test scores and criteria of patient motivation (M), functioning potential (P), satisfaction (S), and a combination of these (M-P). N= 90

Test Scores	Criteria M	P	S	M-P
Thurstone Political Interest	.25*	.25*	.28**	.01
SVI Self-Concept rating	.27**	.17	.19	.16
SVI Self-acceptance rating	.15	.02	.06	.21*
SVI Ideal Self rating	-.03	-.11	-.06	.12
SVI Ideal Self minus Self rating	-.32**	-.25*	-.23*	-.11
SVI Perception of Others rating	.14	.00	.07	.22*
Bass Self Orientation	-.07	-.03	-.14	-.06
Bass Task Orientation	.03	.01	.01	.03
Shipley Verbal IQ	.17	.18	.15	-.01
Shipley Performance IQ	.19	.13	.04	.10
Shipley Total IQ	.22*	.17	.09	.08
Rotter Anxiety score	-.27**	-.20	-.27**	-.10
WAYS Social Restraint & Self Control	.21*	.21*	.25*	.01
WAYS Progress & Enjoyment Through Action	.03	.11	-.01	-.13
WAYS Withdrawal & Self-Sufficiency	-.01	.01	-.06	-.03
WAYS Receptivity & Sympathetic Concern	.18	.06	.16	.18
WAYS Accepting Value Statements	-.12	-.25*	-.16	.22*
WAYS Intensity of Response	-.02	-.03	-.04	.02

* when $r = .21$, $p < .05$

** when $r = .27$, $p < .01$

Table 3

Standardized partial regression weights for the 14 factors in predicting the 3 criteria: motivation (M), functioning potential (P), and patient satisfaction (S).

	Criteria		
Factors	M	P	S
I	.49***	.44***	.33**
II	.14	.08	.07
III	-.16	-.30*	-.23
IV	-.03	-.06	.08
V	.26*	.14	.14
VI	-.18	.04	.06
VII	.04	-.01	.10
VIII	-.06	-.04	-.08
IX	-.16	-.06	-.15
X	.10	-.03	.15
XI	-.10	.11	-.06
XII	-.18	-.15	-.12
XIII	.11	.21*	.18
XIV	.02	.07	.02

* $p < .05$

** $p < .01$

*** $p < .001$

Footnotes

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